



"Version with Markings to Show Changes Made"

IN THE CLAIMS:

Independent claims 1, 6, 8, 13 and 14 have been amended as follows:

1. (Amended) An apparatus for providing a virtual volume, the apparatus comprising:

a first plurality of disks;

a second plurality of back-end controllers coupled to the first plurality of disks for organizing and presenting the first plurality of disks as a third plurality of redundant arrays of disks; and

a front-end controller coupled to the second plurality of back-end controllers for generating mirror sets from at least one of the disks in a third plurality of redundant arrays of disks received from the second plurality of back-end controllers, striping at least one of the disks in the third plurality of redundant arrays of disks and presenting the striped arrays as a virtual volume.

6. (Amended) An apparatus for providing a virtual volume, the apparatus comprising:

a first plurality of disks;

a redundant array of independent disks (RAID) engine comprising a second plurality of back-end controllers coupled to the first plurality of disks for organizing and presenting the first plurality of disks as a third plurality of RAID sets; and

a striping engine coupled to the RAID engine for receiving the third plurality of RAID sets as members, generating mirror sets from at least one of the disks in the third plurality of RAID sets from the second plurality of back-end controllers, striping at least one of the disks in the member RAID sets, and presenting the striped member RAID sets as a virtual volume.

8. (Amended) An apparatus for providing a virtual volume, the apparatus comprising:

a first plurality of back-end controllers, each configured to organize and present X N-member RAID sets, and each having N busses capable of supporting X+1 disks each;

a second plurality of groups of X+1 disks, wherein each disk in the group is coupled to one of the N busses associated with one of the plurality of back-end controller busses; and

a local front-end controller coupled to the plurality of back-end controllers for receiving the X N-member RAID sets as members, striping the X N-member RAID sets, and presenting the striped X N-member RAID sets as a virtual volume,

wherein the local front-end controller is configured to generate mirror sets from the RAID sets received as members from different back-end controllers, to stripe the mirror sets, and to present the striped mirror sets as the virtual volume.

13. (Amended) An electronic system comprising:

a computer; and

an apparatus coupled to the computer for presenting a virtual volume to the computer, the apparatus including:

a first plurality of disks;

a second plurality of back-end controllers coupled to the first plurality of disks for organizing and presenting the first plurality of disks as a third plurality of redundant arrays of disks; and

a front-end controller coupled to the second plurality of back-end controllers for generating mirror sets from at least one of the disks in the plurality of redundant arrays of disks, and striping the third plurality of redundant arrays of disks and presenting the striped redundant arrays of disks as the virtual volume.

14. (Amended) A method of storing data on a first plurality of disks, the method comprising:

using a second plurality of back-end controllers, organizing the first plurality of disks into a second plurality of redundant arrays of disks;

using at least one front-end controller, generating mirror sets from at least one of the disks in the second plurality of redundant arrays of disks, striping at least one of the second plurality of redundant arrays of disks together to form a virtual volume; and  
writing the data to the virtual volume.